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Maltreatment, Suicidality, and Substance Problems in USAF

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INTRODUCTION:

This project aims to enhance the capacity of the Air Force (AF) to reduce death, injury, and degraded force readiness via reduction of the prevalence and impact of family maltreatment, suicidality, and alcohol/drug problems (“secretive problems”). Managing risk and increasing resilience in military human resources (i.e., “Force Health Protection”) is a top priority for DoD and Armed Forces leadership. The objective of this study is to enhance the AF’s current prevention delivery (known as the Integrated Delivery System; IDS) infrastructure through (a) the development and validation of a information system needed to direct prevention efforts more effectively and efficiently; (b) the adoption of a prevention-science-based approach; and (c) the evaluation of its effectiveness. When funded, the proposed project was broken into two phases. This first phase is a demonstration project on which to build a randomized trial. This project is meeting the objectives by: (a) pilot testing the development of an innovative surveillance system and validating its accuracy (at 4 AF bases) for family maltreatment, suicidality, and problematic alcohol and drug use, and (b) pilot testing the creation of an enhanced IDS by training community leaders in prevention-science-based intervention methodology and testing the impact on factors that are prerequisites for effective community prevention initiatives and on targeted outcomes.

BODY:

Year 1 (1-12 months)

Task 1: Administer CA+ survey to 4 test sites, implementing strategies to increase response rate (Months 1-3) *Completed successfully*

Wing Commanders (CCs) at three Air Combat Command bases (Barksdale AFB, Minot AFB, & Shaw AFB) and one Air Education and Training Command bases (Tyndall AFB) were briefed; all volunteered their bases for participation. Permission was granted to ask frank, direct questions about secretive problems as a supplement to the 2003 AF Community Assessment (CA) at their bases. Minot AFB, (Minot, North Dakota) was originally part of the study but withdrew before survey launch due to the high operations tempo due to Operation Iraqi Freedom.

The AF Community Assessment and the supplemental survey (CA+) were administered via the WWW at three volunteer bases (Barksdale AFB, Shaw AFB, and Tyndall AFB). Approximately 900 randomly selected Active Duty (AD) members and 1,100 spouses were invited to participate at each base. At regular intervals they were reminded of the survey by a series of emails (AD members) or postcards (spouses). The survey was active for approximately 11 weeks (May 1 – July 15, 2003). Each base conducted its own publicity and “get out the vote” campaign. The CA contractor and Stony Brook sent out regular reminders by email/mail, an empirically-tested way of boosting response rates (e.g., Dillman, 2000).

Based on feedback from focus groups conducted prior to this project, several steps were taken to minimize respondent burden and to increase respondents’ confidence in the anonymity of the survey. When respondents began the supplemental portion of the survey, they received a consent page (“Information to Help You Decide If You Want to Participate”) which described the sensitive questions they were about to be asked, the rationale for asking them, and a summary of how the data will be used and when and how they will be able to learn the results for their community.

Sample

Air Force Personnel Center (AFPC; Randolph AFB, TX) drew the AD member and spouse samples¹ and provided Caliber Associates (the CA contractor) with email addresses (for AD members) and postal addresses (for spouses). A random sample of approximately 900 AD members and 1,100 spouses was drawn at each base. Caliber Associates contacted potential AD respondents via email and administered the survey to them via the WWW. There was no recruitment specifically for the supplement. When individuals at a CA+ base completed the CA, a screen appeared with information about the supplement and, after consenting, continued with the supplement questions. Randomly selected AD members ($n = 2,695$) and spouses ($n = 3,214$) were invited to participate at three volunteer Air Force Bases: Barksdale AFB (Shreveport, LA), Shaw AFB (Sumter, SC), and Tyndall AFB (Panama City, FL).

The number of participants invited to participate and the number who completed at least part of the CA+ at each base are listed in Table 1. However, an error in the initial sample pull provided to the survey contactor contributed to a bias in these figures. AD members married to other AD members were included in the random sample of spouses. When they went to the WWW to complete the survey, they were not asked about whether they were sampled as an AD member or a spouse. Thus AD member “spouses” were counted by survey contactor as completing AD member surveys but as receiving spouse invitations. This had the effect of inflating the AD member response rate and deflating the spouse response rate². These rates are adjusted in Table 2. The dual AD marriage rate is 9%. If dual-AD couples represented 9% of spouses, then to account for the above-described problem, AD invitations number should be increased by 9% and the spouse invitations number decreased by 9%. Adjusting the denominator in this way had the effect of reducing the AD member response rate from 63% to 56% and increasing the spouse response rate from 23% to 25%.

¹ Although members of the Air Force Reserve Command were also sampled separately, they were not part of the CA+ process and therefore we will not discuss them in this report.

² Furthermore, AD members married to other AD members could have been selected more than once (i.e., in the AD sample and in the spouse sample). This had an unknown impact on response rates.

Table 1. *Participants in CA+ by base*

Base	AD Members			Spouses			Total		
	<i>n</i>	Invitations	Response Rate	<i>n</i>	Invitations	Response Rate	<i>N</i>	Invitations	Response Rate
Barksdale AFB	685	931	74%	241	1149	21%	926	2080	45%
Shaw AFB	518	920	56%	280	1150	24%	798	2070	39%
Tyndall AFB	484	845	57%	232	1042	22%	716	1887	38%
Total	1687	2696	63%	753	3341	23%	2440	6037	40%

Table 2. *Participants in CA+ by base, adjusted for dual AD spouse misidentification*

Base	AD Members			Spouses			Total		
	<i>n</i>	Adjusted Invitations	Adj. Response Rate	<i>n</i>	Adjusted Invitations	Adj. Response Rate	<i>n</i>	Adjusted Invitations	Adj. Response Rate
Barksdale AFB	685	1034	66%	241	1046	23%	926	2080	45%
Shaw AFB	518	1024	51%	280	1047	27%	798	2070	39%
Tyndall AFB	484	939	52%	232	948	24%	716	1887	38%
Total	1687	2997	56%	753	3040	25%	2440	6037	40%

Measures

Risk and Protective Factors. The CA is a survey of community capacity that includes potential risk and protective factors for secretive problems. The 2003 version of the CA underwent extensive revision to correspond with the theoretical model of community functioning adapted by the AF IDS in 1999. Primary and secondary constructs in the model have been operationalized and measures were selected or adapted, whenever possible, from previously used and/or published measures. Although full-length scales would result in an inordinately long survey, nearly all constructs are measured with multiple items.

Secretive Problems: Family Maltreatment. The development and pilot testing of the measure of family maltreatment is summarized above (and described in more detail in Heyman, Slep, & Casillas, 2001).

Secretive Problems: Alcohol Problems. The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item self-report measure of hazardous alcohol consumption developed by the World Health Organization in a six country collaborative project. As part of the development study, it was validated against clinical assessments and scoring criteria were developed to maximize both sensitivity and specificity.

The first two questions ask about the frequency and quantity of alcohol consumption. To limit response burden, if individuals report drinking infrequently *and* limiting consumption to one to two drinks per occasion on the CA+, they will not be asked the additional eight questions that assess symptoms of alcohol abuse and dependence.

Secretive Problems: Drug Use. The drug use measure is divided into two sections: prescription drug misuse and illicit drug use. Each section provides participants with an alphabetical checklist of drugs of that type (e.g., amphetamines, barbiturates, Codeine; cocaine, hashish, heroin). For each prescription medication checked, the respondent is asked (a) the frequency of use when s/he did not have a prescription and (b) the frequency of use at a dosage greater than prescribed. For each illicit drug checked, the respondent is asked the frequency of use. Focus groups with AF samples indicated that the questions are clear and unambiguous.

Secretive Problems: Suicidality. The Center for Disease Control's (CDC) four item suicidality measure has been used in several nationally representative studies: (a) the biennial (1991-2001) high school-based National Youth Risk Behavior Survey ($N = 13,60$ respondents; $N = 199$ schools; Grubman et al., 2002) and (b) the 1995 National College Health Risk Behavior Survey ($N = 4,609$; Brener, Hassan, & Barrios, 1999). Although face valid, the measure elicited reports of suicidality: 19% of high school students and 10% of college undergraduates reported seriously considering suicide in the last year. Given the relative youth of the AF population, these findings imply that the measure is adequately sensitive for use in the AF.

Task 2: Conduct analyses of risk and protective factors on CA+ data (Months 3-5) *Completed successfully*

Results

As shown in Table 3 below, the annual prevalence of secretive problems was 20.4%. Befitting the "secretive" moniker, only 1 in 6 of members with secretive problems let anyone in the AF (including friends) know. If the prevalences from the

CA+ pilot bases were extrapolated to the entire AF, this would mean that 76,075 AD members had serious secretive problems in the last year (10,815 known in some way to the community and 65,260 not known to the community). We should note that AD members in roles requiring more intensive screening (Personnel Reliability Program, flight status, special security clearance) nevertheless reported equivalent prevalences to the overall AD population (e.g., 19.1% reported at least one secretive problem).

Table 3. *Prevalences of Secretive Problems*

Secretive Problem	Annual Prevalence	Extrapolated AF Estimate
Any secretive problem listed below	20.4%	76,075 AD members
Alcohol problems	8.57%	25,174 AD members
Controlled prescription drug misuse	1.52%	4,465 AD members
Illicit drug use	0.34%	999 AD members
Suicidality	6.22%	18,271 AD members
Partner physical abuse	2.30% (abuse of ♀); 1.70% (abuse of ♂)	5,405 & 3,995 AF couples
Partner emotional abuse	8.94% (abuse of ♀); 8.41% (abuse of ♂)	21,009 & 19,763 AF couples
Child physical abuse	6.87%	8,335 AF families
Child emotional abuse	5.60%	6,810 AF families

- *Implications.* We derive the following implications from the 2003 CA+ prevalence results:
- Secretive problems are prevalent in the AF.
 - Most members with secretive problems are not identified as such to the AF community.
 - Many respondents are willing to report secretive problems on anonymous surveys. Furthermore, Affirmative responses at these prevalence rates make the planned data analyses feasible and highlight the importance of community-based intervention.

However, there are numerous reasons why respondents might not admit to secretive problems when they do in fact exist. Thus, these rates should be considered the lower estimated bounds of the true prevalences. By trying to reduce community risk/protective factors rather than drive individuals into programs, NORTH STAR has a reasonable chance of impacting even those who are not willing to report secretive problems on a survey.

Risk and protective factor analyses are summarized in Table 4. As can be seen from this table, the CA did indeed include many constructs that are related to multiple secretive problems. In addition to replicating findings in the civilian literature, these results suggest that military-specific variables are significantly related to many of the secretive problems. These risk and protective factor findings are used to guide base IDS teams in prioritizing needs and designing evidence-based action plans (as detailed in the proposal).

Table 4. Significant relations between risk/protective factors and secretive problems

	Alcohol Problems	Prescr. Drug Misuse	Illicit Drug Use	Suicidality	Child Abuse		Partner Physical Abuse		Partner Emotional Abuse	
					Emotional	Physical	♂-to- ♀	♀-to- ♂	♂-to- ♀	♀-to-♂
Availability of support from formal agencies			**							***
Availability of social support				*						
Community safety	***	**	***	***			*	**	*	***
Community stressors/problems	*		**	***			***	***	**	***
Community support for youth	*			*			*	***		*
Community unity/responsibility	***		**	***			**	***		***
Depressive symptomatology	***	**	**	***	***	*	***	***	***	***
Financial stress	***		**	**	**		***	***	**	**
Job Stress	*							*	**	
Parenting satisfaction				**	***	*	***	**	***	
Perceived coping ability of spouse/significant other	**	*		***			***	***	***	**
Perceived family coping	*	**	***	***	***	***	***	***	***	***
Perceived personal coping	***	***	***	***	***	*	***	***	***	***
Personal military preparedness	***	**		*						**
Physical well-being	**			**				*	***	***
Relationship satisfaction		**	***	***	**	***	***	***	***	***
Satisfaction with the AF	***	**	***	***			*	***	***	
Spiritual well-being/involvement	***	**		**					**	
Support from leadership	**	*	***	***			***	***		***
Support from neighbors	***			**			**	**		**
Support from significant other		**	***	***			*	***	***	
Work group cohesion		**	***	***				**	*	**

Note. * = $p < .05$; ** = $p < .01$; *** = $p < .001$

Task 3: Implement enhanced IDS, Phase 1 *Completed successfully*

The first three bases received their CA+ data and their NORTH STAR on-site training in Oct Nov 2003. All three bases completed NORTH STAR (i.e., prioritizing target problems and risk/protective factors based on their data, identifying possible activities to implement from the Guidebook, investigating/selecting activities and developing a community action plan).

We reviewed the scientific literature for empirically-supported efficacious activities for impacting the 24 risk and protective factors. The resulting guidebook — *Enhancing IDS: A Guidebook to Activities that Work* (submitted as part of earlier reports) — also included activities that impact risk/protective factors that were not among the 24 included in the CA but which have been empirically demonstrated in the civilian literature. To familiarize IDSs with each activity, a 1-2 page description is provided along with a global “empirical evidence rating” (i.e., “Good,” “Better,” or “Best”). The activities included in the guidebook represent only a small fraction of those that have been developed to target those risk/protective factors. Strict criteria were used to select interventions for inclusion; that is, all of the activities presented in the guidebook:

- Target research-based risk and/or protective factors for secretive problems. Interventions that *directly* target family maltreatment, substance abuse, or suicidality are not included.
 - Are available for implementation. That is, all information and/or materials necessary to carry them out can be obtained from the intervention developer, an independent distributor, a website, and/or other sources.
 - Can be practically and feasibly implemented on a community scale.
 - Are empirically supported. That is, they have produced significant positive effects on the relevant risk and protective factors in community trials and/or controlled studies.
- *Implications.* Empirically-supported, community-level activities could be located for the risk and protective factors in the CA.

IDS members were assessed prior to and following receiving the NORTH STAR training. Participants were pleased with the NORTH STAR approach to prevention ($M = 4.38$ [out of 5], $SD = 0.57$), NORTH STAR training ($M = 4.56$, $SD = .51$), and NORTH STAR materials ($M = 4.44$, $SD = .65$). Participants’ ratings of their estimations of their ability to use CA data to create a community action plan improved significantly after receiving their NORTH STAR training $t(49) = 2.57$, $p < .05$, as did their beliefs that their efforts would be effective $t(49) = 3.63$, $p < .001$.

- *Implications.* We derived four implications from these results. First, survey results revealed an even more pressing need for community-based prevention than had been anticipated. Second, the NORTH STAR approach is understandable and appealing to IDS members and base leadership. Third, the materials that have been developed support the implementation of NORTH STAR as it was designed. Finally, NORTH STAR appears effective in facilitating bases, identifying key

needs, and implementing community-wide evidence-based activities to address those needs.

Year 2 (Months 13-24)

Task 1: Provide technical assistance to IDS teams at pilot bases in implementing action plans systematically monitor impact, and adjust implementations accordingly *Completed successfully*

Follow-Up Consultation Visits

In July-04 – August-04 members of the Stony Brook NORTH STAR team made follow-up consultation visits to the three pilot bases. Each of these visits consisted of two days of training for the IDS Teams and an out-brief to the CAIB. These base consultation visits proved extremely valuable in identifying implementation challenges (gaps, limitations and shortcomings) faced by the IDS service providers. Actions taken to resolve these problems served as important lessons learned in structuring and adjusting the NORTH STAR prevention training for the fourth pilot at Kadena AB.

Kadena AB (fourth pilot base)

- In 2004, Kadena AB volunteered as a pilot NORTH STAR base in response to base leadership concerns regarding increases in problem behaviors. Modifications to the training protocol for Kadena were made based on lessons learned from experiences at the initial three pilot bases.

Task 2: Develop and validate algorithms *Completed successfully*

Develop and crossvalidate 22 algorithms (Months 13-16)

We have developed and crossvalidated the algorithms. The primary algorithms (those focusing on clinically significant problem behaviors and occurring at a sufficient base rate for prevalences to be estimated and evaluated for accuracy) are reported in the following table. Several dependent variables occurred at very low baserates (i.e., < 1%). Although algorithms can still be developed, given the relatively small size of our pilot sample, evaluation of the accuracy of the algorithms is not as meaningful as for higher base rate phenomena.

Bootstrap confidence intervals for 22 algorithms (Months 15-18)

We have bootstrapped confidence intervals for all algorithms. Results for the primary algorithms are reported in the following table. The confidence interval results are encouraging given the relatively small sample size of the pilot data set, and suggest that the sample size was sufficient to support moderately accurate estimates. Our earlier work with archival data suggested that data sets as large as 15,000 are helpful when developing algorithms.

Compare accuracy of using (a) correction factors on separate algorithms vs. (b) global algorithms (Months 18-21).

The results of this portion of the study were not conclusive. In this relatively small pilot data set (approximately 1,500 in the development and crossvalidation samples, fewer when

the sample is restricted to married individuals, and fewer again when restricted to parents), there was some suggestion that correction factors provided more stable prevalence estimates than algorithms on aggregate outcomes. This may be because the algorithms on aggregate outcomes are developed on more heterogeneous data sets that may mask significant interactive effects that undermine the predictive success of the algorithm; however, because of the size of the development samples, we cannot address the role of low power in the algorithm and correction factor development. We plan to follow these analyses up in future work on the much larger 2006 CA plus supplement data set (approximate $N = 70,000$).

Table 5. *Secretive Problem Algorithm Prevalence Estimates*

Problem	Prevalence		Difference
	Actual	Estimated	
Alcohol Abuse	6.48	5.52	0.96
Suicidality	4.8	4.32	0.48
Partner Maltreatment			
Male-to-Female			
Physical	1.4	1.12	0.52
Emotional	6.92	5.88	1.08
Female-to-Male			
Physical	1.4	1.12	0.52
Emotional	5.88	6.24	0.36
Child Maltreatment			
Physical	1.4	1.12	0.52
Emotional	4.26	3.44	0.82
Neglect	36.6	31.82	6.82

Table 6. Detailed Secretive Algorithm Prevalence Estimates with Bootstrapped Confidence Intervals

		Observed	Bias	B.S. M	B.S. SE	Empirical Percentiles Conf. Intervals				BC _a Confidence Intervals			
						2.50%	5.00%	95.00%	97.50%	2.50%	5.00%	95.00%	97.50%
Alcohol Abuse													
AF Base 1 (n = 227)	Measured	7.75%	0.00%	7.75%	1.91%	4.23%	4.73%	11.05%	11.72%	4.58%	5.06%	11.49%	12.35%
	Estimated	6.77%	-0.01%	6.76%	1.70%	3.66%	4.08%	9.69%	10.29%	3.97%	4.37%	10.11%	10.83%
	Difference	-0.99%	0.01%	-0.98%	1.93%	-4.82%	-4.22%	2.14%	2.72%	-5.00%	-4.37%	2.01%	2.57%
AF Base 2 (n = 182)	Measured	4.76%	0.00%	4.75%	1.60%	1.91%	2.30%	7.54%	8.12%	2.29%	2.62%	8.09%	8.88%
	Estimated	5.21%	0.00%	5.21%	1.66%	2.23%	2.66%	8.09%	8.71%	2.61%	2.98%	8.63%	9.37%
	Difference	0.45%	0.01%	0.46%	1.67%	-2.85%	-2.33%	3.26%	3.70%	-2.81%	-2.21%	3.30%	3.83%
AF Base 3 (n = 153)	Measured	3.14%	0.01%	3.15%	1.51%	0.67%	0.88%	5.85%	6.47%	0.97%	1.33%	6.79%	7.74%
	Estimated	4.02%	0.02%	4.04%	1.47%	1.45%	1.79%	6.62%	7.21%	1.74%	2.09%	7.15%	7.87%
	Difference	0.88%	0.01%	0.89%	1.80%	-2.76%	-2.12%	3.78%	4.32%	-3.07%	-2.37%	3.59%	4.09%
Suicidality													
AF Base 1 (n = 231)	Measured	5.31%	0.01%	5.31%	1.56%	2.51%	2.89%	8.01%	8.59%	2.83%	3.18%	8.48%	9.19%
	Estimated	5.31%	0.01%	5.32%	1.50%	2.61%	2.96%	7.89%	8.45%	2.88%	3.24%	8.29%	8.99%
	Difference	0.00%	0.00%	0.00%	1.47%	-2.91%	-2.42%	2.42%	2.88%	-2.95%	-2.45%	2.40%	2.86%
AF Base 2 (n = 173)	Measured	4.79%	0.01%	4.80%	1.61%	1.93%	2.31%	7.61%	8.23%	2.27%	2.62%	8.19%	8.95%
	Estimated	4.64%	0.00%	4.64%	1.61%	1.78%	2.13%	7.45%	8.03%	2.11%	2.47%	8.02%	8.80%
	Difference	-0.16%	0.00%	-0.16%	1.58%	-3.26%	-2.76%	2.43%	2.96%	-3.34%	-2.81%	2.43%	2.96%
AF Base 3 (n = 156)	Measured	3.43%	0.00%	3.43%	1.48%	0.87%	1.27%	6.06%	6.61%	1.36%	1.56%	6.87%	7.76%
	Estimated	2.37%	0.01%	2.38%	1.17%	0.38%	0.69%	4.47%	4.94%	0.78%	0.95%	5.16%	5.90%
	Difference	-1.06%	0.00%	-1.06%	1.83%	-4.77%	-4.12%	1.87%	2.39%	-5.15%	-4.40%	1.75%	2.26%
Husband-to-Wife Physical Abuse (Any)													
AF Base 1 (n = 256)	Measured	2.43%	0.01%	2.43%	0.92%	0.82%	1.03%	4.05%	4.40%	1.05%	1.24%	4.44%	4.93%
	Estimated	2.87%	0.00%	2.87%	1.02%	1.08%	1.32%	4.66%	5.03%	1.31%	1.54%	5.08%	5.58%
	Difference	0.45%	0.00%	0.45%	1.09%	-1.70%	-1.34%	2.26%	2.60%	-1.73%	-1.37%	2.26%	2.60%
AF Base 2 (n = 245)	Measured	3.43%	0.00%	3.42%	1.18%	1.34%	1.60%	5.48%	5.92%	1.59%	1.85%	5.92%	6.50%
	Estimated	2.58%	0.00%	2.58%	1.01%	0.83%	1.09%	4.35%	4.76%	1.09%	1.29%	4.79%	5.33%
	Difference	-0.85%	0.01%	-0.84%	1.43%	-3.71%	-3.22%	1.49%	1.93%	-3.85%	-3.35%	1.40%	1.82%
AF Base 3 (n = 204)	Measured	0.96%	0.00%	0.97%	0.61%	0.08%	0.12%	2.10%	2.35%	0.16%	0.26%	3.40%	3.93%
	Estimated	1.28%	0.00%	1.29%	0.61%	0.25%	0.38%	2.38%	2.63%	0.52%	0.64%	3.39%	3.85%
	Difference	0.32%	0.00%	0.32%	0.94%	-1.55%	-1.25%	1.83%	2.08%	-1.91%	-1.46%	1.92%	2.19%

Husband-to-Wife Emotional Abuse													
AF Base 1 (n = 262)	Measured	5.65%	0.00%	5.65%	1.47%	2.97%	3.35%	8.17%	8.72%	3.27%	3.61%	8.56%	9.22%
	Estimated	4.90%	-0.01%	4.89%	1.37%	2.41%	2.76%	7.27%	7.79%	2.72%	3.03%	7.72%	8.36%
	Difference	-0.75%	0.01%	-0.74%	1.57%	-3.85%	-3.35%	1.83%	2.33%	-3.90%	-3.40%	1.78%	2.28%
AF Base 2 (n = 238)	Measured	6.51%	-0.01%	6.50%	1.55%	3.67%	4.08%	9.16%	9.71%	3.96%	4.33%	9.53%	10.20%
	Estimated	6.09%	0.02%	6.11%	1.52%	3.31%	3.71%	8.71%	9.26%	3.57%	3.91%	9.02%	9.65%
	Difference	-0.42%	-0.01%	-0.43%	1.59%	-3.56%	-3.06%	2.17%	2.70%	-3.56%	-3.05%	2.20%	2.71%
AF Base 3 (n = 204)	Measured	6.00%	-0.01%	5.99%	1.74%	2.82%	3.27%	9.01%	9.66%	3.20%	3.59%	9.54%	10.28%
	Estimated	6.19%	0.01%	6.20%	1.76%	3.04%	3.47%	9.24%	9.86%	3.40%	3.79%	9.76%	10.58%
	Difference	0.19%	0.00%	0.19%	1.89%	-3.52%	-2.92%	3.27%	3.86%	-3.58%	-2.96%	3.28%	3.85%
Wife-to-Husband Physical Abuse (Any)													
AF Base 1 (n = 256)	Measured	1.64%	0.00%	1.64%	0.73%	0.38%	0.55%	2.94%	3.23%	0.58%	0.69%	3.33%	3.75%
	Estimated	1.21%	0.00%	1.21%	0.65%	0.19%	0.28%	2.39%	2.60%	0.37%	0.45%	2.90%	3.37%
	Difference	-0.43%	0.00%	-0.43%	0.85%	-2.10%	-1.83%	0.96%	1.22%	-2.17%	-1.87%	0.98%	1.29%
AF Base 2 (n = 245)	Measured	1.49%	0.00%	1.49%	0.74%	0.30%	0.39%	2.82%	3.09%	0.41%	0.53%	3.32%	3.78%
	Estimated	1.18%	-0.01%	1.17%	0.66%	0.13%	0.17%	2.36%	2.64%	0.30%	0.43%	2.91%	3.38%
	Difference	-0.31%	0.00%	-0.31%	0.95%	-2.17%	-1.86%	1.23%	1.56%	-2.20%	-1.88%	1.28%	1.59%
AF Base 3 (n = 204)	Measured	0.86%	-0.01%	0.86%	0.77%	0.00%	0.00%	2.36%	2.52%	0.00%	0.00%	3.26%	4.21%
	Estimated	1.05%	0.00%	1.05%	0.64%	0.13%	0.14%	2.20%	2.46%	0.18%	0.30%	2.77%	3.32%
	Difference	0.18%	0.00%	0.19%	0.96%	-1.77%	-1.37%	1.72%	2.01%	-2.19%	-1.76%	1.74%	2.03%
Wife-to-Husband Emotional Abuse													
AF Base 1 (n = 256)	Measured	6.19%	0.01%	6.20%	1.54%	3.37%	3.78%	8.84%	9.42%	3.64%	4.01%	9.19%	9.88%
	Estimated	7.02%	0.00%	7.02%	1.62%	4.03%	4.47%	9.79%	10.34%	4.31%	4.69%	10.11%	10.77%
	Difference	0.83%	0.00%	0.83%	1.93%	-2.93%	-2.32%	4.01%	4.60%	-2.91%	-2.30%	4.03%	4.63%
AF Base 2 (n = 245)	Measured	6.04%	-0.01%	6.03%	1.65%	3.03%	3.47%	8.85%	9.47%	3.39%	3.77%	9.36%	10.13%
	Estimated	5.96%	0.00%	5.97%	1.63%	2.99%	3.40%	8.77%	9.36%	3.31%	3.69%	9.24%	9.98%
	Difference	-0.08%	0.01%	-0.07%	2.03%	-4.05%	-3.40%	3.28%	3.94%	-4.09%	-3.42%	3.25%	3.92%
AF Base 3 (n = 204)	Measured	5.28%	0.00%	5.28%	1.75%	2.19%	2.61%	8.33%	8.98%	2.65%	2.98%	9.04%	9.91%
	Estimated	5.56%	0.00%	5.56%	1.77%	2.39%	2.83%	8.63%	9.30%	2.82%	3.18%	9.27%	10.14%
	Difference	0.28%	0.00%	0.28%	2.10%	-3.86%	-3.20%	3.72%	4.40%	-3.92%	-3.24%	3.71%	4.37%

Child Physical Abuse													
AF Base 1 (n = 185)	Measured	5.58%	0.00%	5.58%	1.72%	2.48%	2.91%	8.56%	9.21%	2.84%	3.22%	9.11%	9.85%
	Estimated	4.24%	-0.01%	4.23%	1.49%	1.57%	2.00%	6.83%	7.41%	2.00%	2.29%	7.50%	8.20%
	Difference	-1.34%	0.00%	-1.34%	1.89%	-5.10%	-4.49%	1.73%	2.28%	-5.26%	-4.61%	1.64%	2.17%
AF Base 2 (n = 165)	Measured	5.84%	0.00%	5.83%	1.87%	2.47%	2.93%	9.07%	9.78%	2.87%	3.28%	9.68%	10.55%
	Estimated	3.33%	-0.01%	3.32%	1.30%	1.10%	1.37%	5.60%	6.12%	1.39%	1.60%	6.23%	6.93%
	Difference	-2.51%	-0.01%	-2.52%	2.15%	-6.87%	-6.12%	0.93%	1.57%	-7.16%	-6.35%	0.76%	1.38%
AF Base 3 (n = 125)	Measured	4.74%	0.01%	4.74%	1.77%	1.60%	2.07%	7.85%	8.51%	2.08%	2.39%	8.55%	9.51%
	Estimated	3.45%	0.01%	3.46%	1.47%	0.91%	1.28%	6.08%	6.62%	1.29%	1.49%	6.72%	7.53%
	Difference	-1.29%	0.02%	-1.27%	2.32%	-5.89%	-5.13%	2.48%	3.19%	-6.17%	-5.35%	2.34%	2.96%
Child Emotional Abuse													
AF Base 1 (n = 185)	Measured	5.59%	0.00%	5.59%	1.80%	2.33%	2.79%	8.67%	9.34%	2.74%	3.13%	9.26%	10.15%
	Estimated	4.11%	0.00%	4.12%	1.54%	1.42%	1.77%	6.81%	7.40%	1.77%	2.09%	7.42%	8.19%
	Difference	-1.47%	0.02%	-1.45%	1.82%	-5.11%	-4.51%	1.51%	2.06%	-5.39%	-4.72%	1.30%	1.86%
AF Base 2 (n = 163)	Measured	2.45%	-0.01%	2.44%	1.23%	0.51%	0.65%	4.65%	5.10%	0.68%	1.01%	5.47%	6.21%
	Estimated	1.61%	0.01%	1.62%	0.93%	0.11%	0.32%	3.30%	3.68%	0.38%	0.57%	4.04%	4.67%
	Difference	-0.84%	0.01%	-0.83%	1.46%	-3.78%	-3.30%	1.52%	1.94%	-4.06%	-3.46%	1.41%	1.83%
AF Base 3 (n = 127)	Measured	4.65%	-0.01%	4.64%	1.93%	1.32%	1.77%	8.04%	8.81%	1.81%	2.18%	8.97%	10.07%
	Estimated	5.26%	0.01%	5.27%	2.14%	1.55%	1.98%	9.04%	9.83%	2.04%	2.49%	9.92%	11.05%
	Difference	0.61%	-0.01%	0.60%	2.03%	-3.25%	-2.66%	3.99%	4.71%	-3.06%	-2.46%	4.26%	5.04%
Child Neglect													
AF Base 1 (n = 185)	Measured	38.00%	0.00%	38.00%	3.71%	30.82%	31.92%	44.13%	45.33%	30.96%	32.04%	44.24%	45.46%
	Estimated	32.54%	-0.02%	32.53%	3.58%	25.64%	26.68%	38.46%	39.67%	25.90%	26.93%	38.72%	40.01%
	Difference	-5.46%	0.00%	-5.45%	4.73%	-14.70%	-13.22%	2.36%	3.86%	-14.72%	-13.23%	2.35%	3.88%
AF Base 2 (n = 159)	Measured	37.63%	-0.04%	37.59%	4.04%	29.75%	30.96%	44.30%	45.53%	30.03%	31.24%	44.55%	45.85%
	Estimated	27.59%	0.01%	27.60%	3.61%	20.71%	21.75%	33.64%	34.88%	20.98%	22.00%	33.97%	35.23%
	Difference	-10.04%	0.04%	-10.00%	5.35%	-20.44%	-18.76%	-1.19%	0.48%	-20.55%	-18.86%	-1.29%	0.35%
AF Base 3 (n = 132)	Measured	32.90%	-0.04%	32.86%	4.46%	24.26%	25.58%	40.29%	41.76%	24.65%	25.92%	40.65%	42.21%
	Estimated	37.08%	-0.02%	37.06%	4.56%	28.24%	29.58%	44.63%	46.10%	28.53%	29.81%	44.91%	46.48%
	Difference	4.18%	-0.01%	4.17%	6.11%	-7.83%	-5.87%	14.16%	16.05%	-7.75%	-5.81%	14.23%	16.12%

Task 3: Begin planning for re-administration of AF Community Assessment and supplement (CA+). *Completed successfully*

This task represents the first steps of a process that culminates in Task 1, Year 3, below. The CA+ was launched in April 2006. We conducted psychometric evaluation of every scale administered in the 2003 CA and made final recommendations to the AF for scale modifications. Nearly all were adopted. The Air Force contract for the 2006 survey was finalized in October 2005. Caliber Associates (Fairfax, VA) was chosen to create the WWW interface and conduct the survey. Other activities occurred in Year 3.

Year 3 (Months 25-36)

Task 1: Oversee CA and supplement survey administration (including strategies to increase response rate at all AF bases). *Completed successfully*

We worked closely with Maj. David Linkh, USAF as the AF contracted for the administration of the CA and supplement. We served on the technical advisory panel for the CA, which had input into all levels of the CA including sampling, recruitment, administration, analyses, and reporting outcomes. We collaborated especially on strategies to improve recruitment and participation rates. The final sample for the 2006 CA and sample was the largest ever: 52,869 AD members, and 17,991 spouses.

Task 2: Conduct proposed HLM analyses to evaluate impact of Enhanced IDS program at pilot sites

- Process evaluation (Months 28-30).
- Outcome evaluation (Months 30-33).
- Provide feedback to IDS teams, provide assistance in modifications to action plans (Months 33-34)
- Write-up final reports (Months 33-36)

Process Evaluation

Table 7. *Evaluation of IDS Process Variable*

<i>Process Variable</i>	<i>Base F</i>	<i>Time F</i>
Efficacy expectancies	0.87	39.83*
Outcome expectancies	1.58	17.45*
Collaboration	0.64	4.59*
Community support for prevention	1.04	0.38
Wing leadership support for prevention	3.84*	6.54*
Effective wing leadership	3.40*	0.04
Community support for framework	0.69	0.15
Wing leadership support for framework	2.99*	3.28
Goals	1.66	0.00
Existence of action plan	0.68	0.11
Quality of action plan	1.36	1.39
Barriers to implementation	2.04	2.61

- The “Time” variable tests if there was a pre-training/post-training effect. IDS committee members rated several variables significantly higher at post-training, including efficacy

expectancies (i.e., their sense that they have the capacity to carry out effective prevention interventions), outcome expectancies (i.e., their sense that positive outcomes would occur if they carried out the prevention plan), collaborative mindset, and wing leadership support for prevention

- A significant effect was found across base for “wing leadership support for prevention”, “Effective wing leadership” and “Wing leadership support for framework”. It is not surprising that variables that focus on perceived wing leadership/support would vary significantly across bases.

Outcome Evaluation

The ultimate question in this pilot study asks if IDS are efforts successful in reducing prevalences of secretive problems as well as the risk and protective profiles in the pilot communities. The completion of this task required an approved extension.

Table 7. Changes in Secretive Problems, 2003-2006

	Base F		Time F	
Alcohol	20.10	***	26.77	***
Misuse of Rx Drugs	1.59		0.01	
Use of Illicit Drugs	1.33		4.22	*
Suicidality	0.67		5.91	*
Child Physical	1.87		2.52	
Child Emotional	10.63	***	54.58	***
Child Neglect	3.62	**	36.22	***
Male-to-Female Physical	8.76	***	0.40	
Female-to-Male Physical	4.10	**	8.11	**
Male-to-Female Emotional	13.91	***	10.40	***
Female-to-Male Emotional	1.24		2.28	

We used multi-level modeling to examine the changes in each problem at our four bases from the first (2003) to the second (2006) assessment. As shown in Table 7, there was a significant decrease between 2003 and 2006 (Time effect) on four variables: use of illicit drugs, suicidality, child emotional abuse, and child neglect. However, alcohol abuse/dependence went *up* significantly (at the three CONUS bases). In addition, female-to-male physical abuse and male-to-female emotional abuse went up significantly, but this was due solely to Kadena AB’s 2006 rates matching that of the other 3 bases and Kadena’s earlier assessment being very low.

Table 7 also displays the “base” effect. This represents significant differences across bases, averaging the 2003 and 2006 rates. This finding is not of high importance, but it does indicate that the majority of problems vary significantly across bases. Specifically, alcohol, child emotional abuse, child neglect, male-to-female physical abuse, female-to-male physical abuse, and male-to-female emotional abuse varied significantly across base.

KEY RESEARCH ACCOMPLISHMENTS/ REPORTABLE OUTCOMES:

In this project, we demonstrated that Air Force prevention committees (IDS committees) can be trained in an empirically-guided approach to community intervention and that this training improves IDS members’ beliefs about prevention (e.g., their ability to carry out prevention activities and the positive impact that they can have on their communities, collaborative mindset).

Furthermore, in an uncontrolled study, IDSs seem to have an effect from 2003 to 2006. Specifically, use of illicit drugs, suicidality, child emotional abuse, and child neglect decreased significantly. However, alcohol abuse/dependence significantly *rose*, and this effect occurred at 3 of 4 bases. Given the operations tempo increase due to Operation Iraqi Freedom, it is conceivable that this increase would have been even greater had it not been for IDS efforts during this period, or it could be that IDSs were quite ineffective on this variable.

The purpose of this pilot was to test if it were possible to train bases in an empirically guided approach to prevention and get some initial data on the promise of this approach. The data presented here indicate that training can be effective and base IDSs may have an impact. As described below, what is necessary to fully test this approach is a randomized controlled trial. That is, this pilot study had no control group, and thus the results cannot be confidently attributed to the NORTH STAR activities. Below is a description of our PRMRP randomized controlled trial following up on this the pilot.

Based on this research we have applied for and received the following funding through the PRMRP FY05 announcement:

1. Family Maltreatment, Substance Problems, and Suicidality: Randomized Prevention Effectiveness Trial (Heyman, PI).

Objective/Hypothesis: This study aims to enhance the ability of base, major command (MAJCOM), and Air Staff IDSs to reduce death, injury, and degraded force readiness through (a) dissemination of base, MAJCOM, and AF prevalences of secretive problems; (b) provision of base-level information to identify and prioritize risk and protective factors, (c) assistance in bases' selecting and implementing empirically supported interventions, and (d) evaluation of whether prevalences were lowered. Thus, we hypothesize that NORTH STAR will enhance military readiness by reducing the prevalence of these threats and by decreasing the level of risk factors and increasing the level of protective factors in test communities.

Specific Aims: Conduct a randomized, controlled prevention trial to test the effectiveness of the prevention science-guided NORTH STAR framework in reducing targeted risk factors; increasing targeted protective factors; and reducing base prevalences of family maltreatment, suicidality, and problematic alcohol and drug use.

Study Design: Twelve matched pairs of bases will volunteer and be randomly assigned to either (a) the NORTH STAR implementation condition or (b) the control condition (which will receive comparable prevalence and risk/protective factor information from the 2006 AF Community Assessment (CA+) but not receive any NORTH STAR training, support, or consultation). At the 12 test and 12 control bases we expect average participation (i.e., 912 AD members and 349 spouses per base) in the CA+, providing us with excellent statistical power.

Presentations: Dr. Heyman was a visiting scholar for two weeks at Griffith University in Brisbane, Australia to present colloquia on NORTH STAR and to consult on community prevention (based on our PRMRP-funded experience). The colloquia are entitled:

1. "Community-Based Prevention for Family Maltreatment, Alcohol Abuse, Drug Use, And Suicidality" 08-Apr-05
2. "Engaging Communities in Prevention Activities: Lessons From Work With The US Air

Force'' 08-Apr-05

CONCLUSIONS:

We are quite encouraged about the progress made in the pilot phase. The pilot bases appear to have the prerequisites to implement effectively a modern prevention initiative. Base IDS teams were very receptive to the NORTH STAR framework and some made good progress in designing and implementing empirically-supported action plans. We were able to develop training materials that were easy to use and well-liked. There were indications from the pilot data that this approach is efficacious. We are still in the early phases of the randomized controlled trial, but we are quite optimistic that this project will supply the military with a new, more effective approach to addressing suicidality, alcohol and drug problems, and family maltreatment.

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- Heyman, R. E., Slep, A. M. S., & Casillas, K. L. (2001). Development and content validation of family maltreatment measures based on Air Force definitions of maltreatment. US Air Force Family Advocacy Program /USDA-NNFR Contract (CR-4953-545735): Development of Algorithms for Estimating Family Violence Rates in Air Force Communities: Algorithm Development SUNY Stony Brook: New York.

APPENDICES: No new since last submission